

MORE THAN 153,000 CIRCULATION



Fruit of the Bible Lands See Page 5

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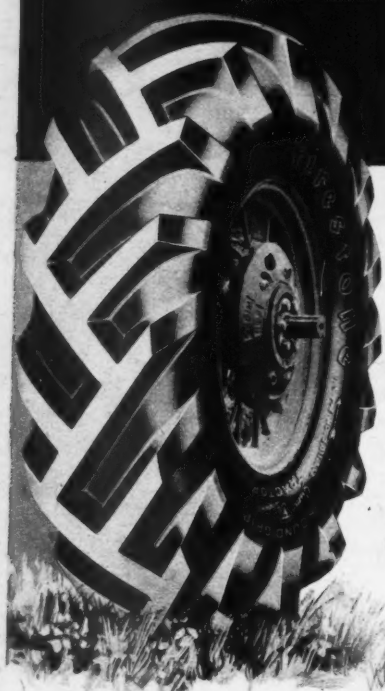
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# Firestone

## GROUND GRIP TIRES

ARE THE ONLY TIRES MADE WHICH PROVIDE  
AUTOMATIC SELF-CLEANING ACTION AND  
GREATEST TRACTION IN ALL SOIL CONDITIONS



**Triple-braced traction bars are a patented and exclusive Firestone advantage**

WHEN the Firestone Ground Grip Tire bites into the soil, you get greatest possible traction because the traction bars are longer, wider, higher, stronger and are triple-braced to prevent yielding, bending and rounding off of the sharp biting edges with resulting loss of traction. And because this amazing tread is open at the bottom and has tapered scientifically-spaced bars, it cleans itself automatically and retains its biting-power in all soil conditions.

Here is performance unequalled, economy unsurpassed — made possible by the many *exclusive* construction features of the *patented* Firestone Ground Grip Tread. You pay no more for the extra traction, longer life and greater riding comfort of Firestone Ground Grip Tires, so be sure to order your new tractor equipped with them. Read below how you can modernize your present tractor by equipping it with Firestone Ground Grip Tires at new low cost.

### Only FIRESTONE Ground Grip Tires Have These Patented and Exclusive Advantages:

**Triple-Braced Traction Bars**, which cannot bend, break or tear off.

**Scientifically-Spaced Traction Bars** provide better cleaning.

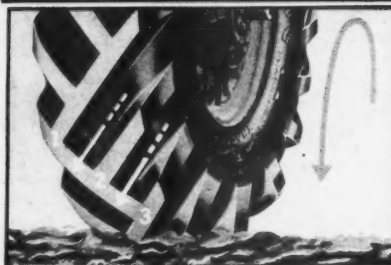
**52 to 89 Extra Inches of Traction Bar Length** give greater traction.

**21% Flatter Triple-Braced Tread** provides greater shoulder traction.

**Longer Tire Life**, because of the patented Firestone Gum-Dipping process.

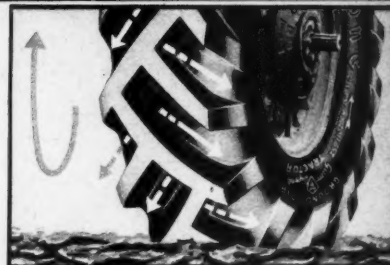
**Tread Guaranteed Not to Loosen**, because of extra layers of Gum-Dipped cords under the tread.

### CLOSE-UP VIEW OF TRACTIVE ACTION



**TRACTION BARS ENTERING GROUND**

Every traction bar in the Firestone Ground Grip Tire is triple-braced to prevent it from bending and to keep the sharp edge from wearing dull. That means greater traction—longer tire life.



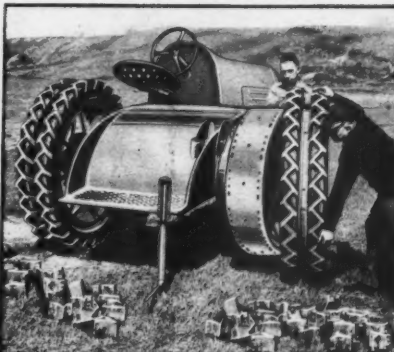
**TRACTION BARS LEAVING GROUND**

Note how dirt, mud and trash are forced out as the tapered bars and the scientific spacing between the bars automatically cause the tire to clean itself, providing greater pulling power.

## New! Exclusive! Sensational!

### FIRESTONE ECONOMY DUAL CHANGEOVER PLAN

Here's the most important farm tire development of 1939! Firestone engineers have developed an exclusive, new Economy Dual Changeover Plan, by which the lugs are removed from steel-lug tractor wheels and a set of dual Firestone Ground Grip Tires are slipped over your present wheels. No need to buy new wheels or cut down the spokes.



### MAIL THIS COUPON TODAY

The Firestone Tire & Rubber Co., Akron, Ohio  
Without obligation on my part, please send me (check below):

- ☐ A copy of the new Farm Guide Book.
- ☐ Information about the Firestone Farm Tire Payment Plan.
- ☐ Full details of the Firestone Tire Changeover Plan.
- ☐ Please demonstrate Firestone Ground Grip Tires with my own tractor on my own farm.

Make and model of tractor .....  
Please demonstrate on ..... (date)  
Name .....  
R. F. D. or Street Number .....  
Town .....  
County ..... State ..... A-12

**MORE FARMERS HAVE THEIR TRACTORS EQUIPPED WITH  
FIRESTONE GROUND GRIP TIRES THAN ANY OTHER MAKE**

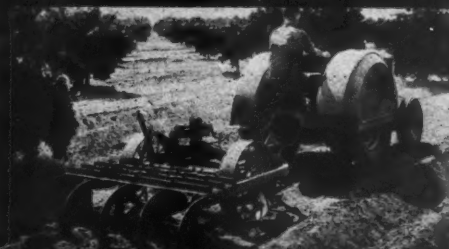
*Listen to the Voice of Firestone with Richard Crooks, Margaret Speaks and the Firestone Symphony Orchestra, under the direction of Alfred Wallenstein, Monday evenings, Nationwide N.B.C. Red Network.*

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choose a

# JOHN DEERE Two-Cylinder Tractor



**O**PERATING COSTS for fruit growers are definitely lower with a John Deere Two-Cylinder Tractor. This is proved by the cost records of owners in all sections of the country.

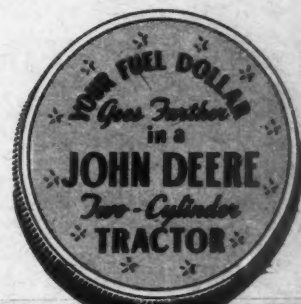
You save money, cut costs, in three different ways with a John Deere Tractor—by burning the low-cost fuels which stretch fuel dollars to the limit . . . through the longer life of the fewer, heavier parts of the two-cylinder engine design . . . as a result of the extreme simplicity and economy of maintenance.

Out in the field, you'll enjoy a new ease of handling, new efficiency of performance, new savings in time and labor.

Built low, your John Deere easily slips under the low-hanging branches. Completely streamlined, there's no damage to trees, blossoms, and fruit. Equipped with individually controlled differential brakes, your John Deere turns short at row ends and around trees.

And, due to the more efficient transmission of power to belt and drawbar, again the result of the two-cylinder engine design, you have extra reserve in tough going.

Your John Deere dealer will be glad to give you the full story of John Deere economy and ease of handling . . . of the three sizes to fit your power needs exactly. Or, use the coupon below.



FOR COMPLETE DETAILS, MAIL COUPON OR GET IN TOUCH WITH YOUR JOHN DEERE DEALER

# JOHN DEERE

## Two-Cylinder Tractors

John Deere,  
Moline, Illinois. Dept. L-42

Yes, I'd like to know more about John Deere economy and ease of handling. I'm particularly interested in:

☐ Models "AO" and "BO" ☐ Standard Tread Tractors  
☐ Model "L" ☐ General Purpose Tractors

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Watch out for  
**'MUD TRAPS'**  
If you want a tractor tire to 'BITE'



**CLEAN**—Steel wheel makers for years have used tread designs with separate lugs that stay clean.

ANY tractor tire whose lugs are joined together has a tread with corners and pockets that can pack up just like a horse's hoof does.

That's what makes a tractor tire *slip*—because it can't dig in and get a good "bite" at the earth.

And because you have to stop and dig the dirt out, such tires also waste your time.

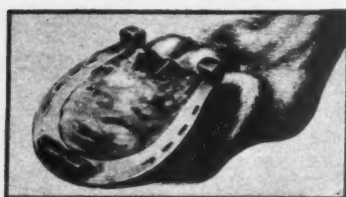
Now take a good look at that picture of the Goodyear Sure-Grip tire's tread.

Each lug is *separate*. No pockets or mud traps. The center is *open* so it can't pack up.

*This tire cleans itself!*

And, when a tire tread stays clean the lugs dig in deeper and take a better hold. You get more draw-bar pull. You do more work in less time—and with less fuel.

The reason the Sure-Grip's



**PACKED UP**—"Mud traps" on a tractor tire pack up just like a horse's hoof does.

lugs don't have to be joined together is because they're *buttressed* at the base—built like a dam, wider at the bottom than at the top. This makes them strong enough to stand alone—without any connecting "bridges" to form pockets.

Notice, too, that those lugs are *evenly spaced* for smoother rolling both in the field and on the road. No jerks or bumps to jar the smithereens out of you and your tractor!

Many farmers figure this great Sure-Grip tire goes a long way toward paying for their new tractor by the savings it makes possible in time, labor, fuel and repair bills.

That's a good thing to remember when you buy a new tractor—because the kind of *tires* you get on it can make all the difference in the world.

Tell your dealer you want Goodyear Sure-Grips!

THE GREATEST NAME IN RUBBER  
**GOODYEAR**  
**SURE-GRIP** the Self-Cleaning Tractor Tire

## FRUIT FORECAST FOR 1940

AN expected rise in consumer demand is the highlight of the 1940 fruit outlook. But, because of collapse of the export market, large crops of the 1939-40 season and forecasts of continued higher production for a number of fruits, this indicated consumer demand will be needed to move crops, must even be increased if profitable marketing of most fruits is to continue against the odds of higher production.

For all fruits, the U.S.D.A. says that production during the next five years will probably be larger than that of the past five years. It is expected that during the next five years there will be significant increases in the production of grapefruit, oranges and lemons. Moderate increases are looked for in crops of peaches, pears and cherries for the same period. Grape output is likely to increase only slightly.

Apple crop quantities are expected to continue lower at a moderate rate. Only other indicated moderate slump in production is for dried prunes. There are no significant changes likely to occur in the average production of other fruits.

Fruit production during the past two decades gives a background for what can be expected in the future. During the 20-year period, apples have started their downward trend, while orange production has more than doubled until today it is exceeded only by apples. Largest of the crop increases is for grapefruit, with present production about four times what it was for the 1919-23 average. Lemon production has almost doubled, while significant increases have also taken place in production of grapes, pears, plums and prunes, apricots, strawberries and cherries.

The annual average per capita production of 13 major fruits has been upped from 176 pounds for the 1919-23 period to 207 pounds during the years 1934-38. It is significant to note that the per capita production of apples declined 20 per cent during this period while that of citrus fruits doubled. It appears from present indications that during the next five seasons a larger per capita supply of fruit may be expected, but an increasing proportion of this supply will be citrus.

Like other agricultural crops, differences in prices received by fruit growers are linked up closely with differences in total supply and consumer demand. During the 10-year period starting in 1919, when consumer income was on a relatively high level and production of all fruits was on a low level compared with more recent years, most of the variation in fruit prices was caused by the rather marked changes in fruit supplies from year to year. Since 1929, however, total production has remained on a relatively high level while consumer income has been relatively low, with year to year variations. The influence of consumer income on fruit prices during the latter period has been more important than in previous years.

The increase in popularity of grapefruit since the 1919-23 period is evidenced by per capita consumption of nearly five pounds 20 years ago and more than 10 pounds for the 1934-38 period. In the same 20-year span, per capita apple consumption has dropped from 50 to 38 pounds. Orange consumption has almost doubled and grape consumption per person has gained six pounds during this period.

The anticipated consumer demand increase will likely raise the per capita consumption of principal fruits during the next few years. The accompanying increased production means that growers must unite in every conceivable effort to keep this trend of consumption moving upward.



# AMERICAN FRUIT GROWER

The  
NATIONAL FRUIT MAGAZINE

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## NONE ARE SO BLIND AS THOSE WHO WILL NOT SEE

**A**ERICAN FRUIT GROWER draws the above headline to the attention of those few growers in Michigan who by court action have thrown a monkey wrench into the machinery of their State's apple advertising campaign.

Apparently they cannot see the forest for the trees, for today no forward-looking fruit grower anywhere questions the need of advertising to whet the appetite of the American public for fruit, in competition with other aggressively promoted food products.

The day has long since gone when all a grower had to do was grow the fruit and then sit back and wait for buyers to come to his farm and take it off his hands. Too many other beguiling foodstuffs now make a glamorous bid for the housewife's attention.

Realizing that a modern age demands modern methods, the farsighted growers of Michigan, and happily they are in the majority, have given time and effort for the past three years to the upbuilding of the Michigan Apple Institute. Their initiative resulted in the passage last spring of legislation creating the Michigan State Apple Commission. Then, under the guidance of experienced advertising and marketing experts, a sales promotion campaign was set in motion to facilitate the disposal at profitable prices of the impending bumper crop of apples. The campaign was to be financed by the sale to growers of State marketing stamps. Just when the promotion program was successfully gathering momentum, the brakes were jammed on by a few growers who detoured the campaign into court to test its constitutionality.

The handful of Michigan growers who are willing to forego the advantages of modern apple advertising because they object to paying even a cent a bushel advertising tax are undoubtedly conscientious in their objections. In the opinion of AMERICAN FRUIT GROWER, however, each one is overlooking the advantages of a united movement in behalf of Michigan apples.

Apples as well as oranges and grapefruit and all other fruits must be well advertised in these competitive days if they are to be well sold.

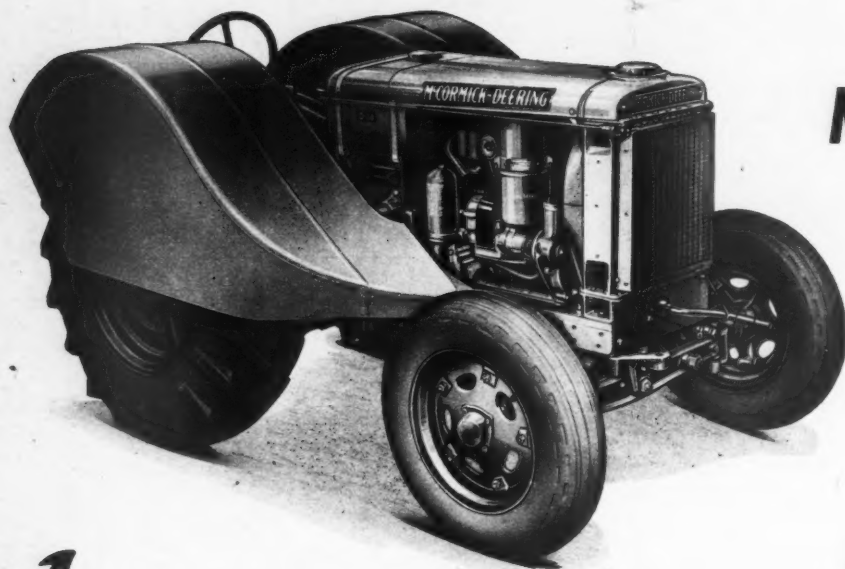
## FRUIT OF THE BIBLE LANDS

(See Front Cover)

Of ancient cultivation, the date palm furnished food and building materials for the peoples of the Bible Lands. Rare fresh dates were reserved for festive occasions, and it is to be supposed that included in the gifts of the Three Wise Men on that Memorable Night were dates from the finest gardens. Direct descendants of the date palms of Biblical times are now growing in this country in climes suitable for their best development.

# Choose Your ORCHARD POWER PARTNER

from the  
**McCormick-Deering**  
Line

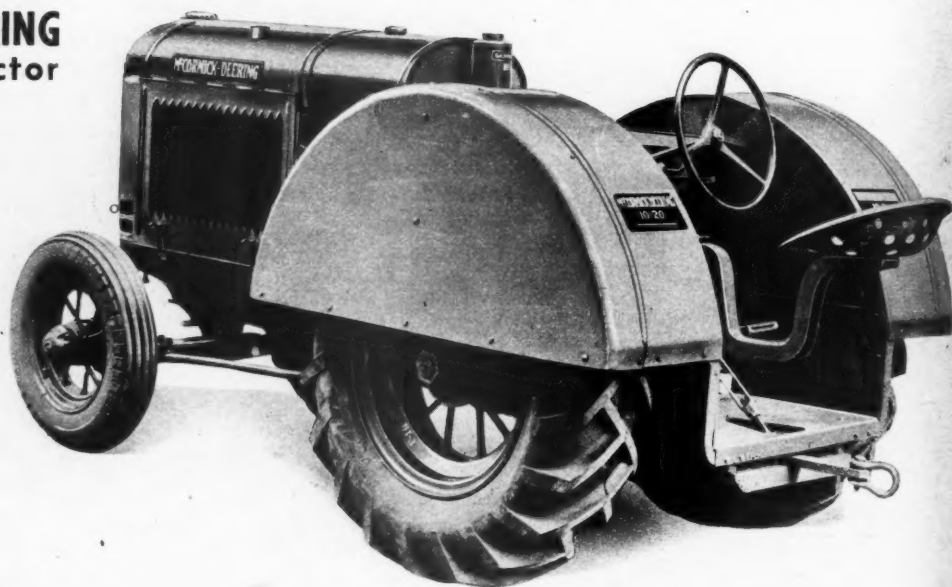


## **McCORMICK - DEERING** **O-14 Orchard Tractor**

Here's a profitable orchard power partner for you—the Model O-14. Designed first and foremost for orchard owners who want a low, short-turning, easy-handling tractor. It has a lot of *speed, zip, and two-fisted power* built into its economical 4-cylinder engine. See it at the nearest International Harvester dealer's store.

## **McCORMICK - DEERING** **10-20 Orchard Tractor**

This powerful orchard tractor has all the special features fruit growers are looking for . . . smooth lines without projections, fender enclosed drive wheels, adjustable seat and low platform for sit-down or stand-up operation, low steering wheel and controls, long swinging drawbar. Look over the Model 10-20 and consider it for an important place in your program.



There's profit and satisfaction for you in a 1940 partnership with a new McCormick-Deering Orchard Tractor. It's the kind of partnership that will last for many years, giving you new highs in *performance, comfort, and economy.*

Why not find out what McCormick-Deering Orchard Tractors have to offer for your particular work? Get the facts from owners. Compare performance. Get the benefit of International Harvester's experience

as the world's leading maker of tractors. And we suggest that you take this tip . . . put your farm and orchard power problems up to the nearby International Harvester dealer. He will be glad to show you the right tractor model.

## **INTERNATIONAL HARVESTER COMPANY**

(Incorporated)

180 North Michigan Avenue

Chicago, Illinois

# **McCORMICK-DEERING**



"There is also a fruit that came out of the Spanish Indies, brought from beyond ye Philipinas or Lusons to Malacca, and from thence to India, it is called papaios, and is very like a Melon." These are the words of the Dutch traveler Linschoten, written in 1598.

# THE PAPAYA IN FLORIDA

By S. J. LYNCH

Florida Subtropical Experiment Station

**N**O OTHER tropical fruit appearing on the markets of the United States during the past two decades holds more promise of becoming a commercial crop in South Florida than the papaya. It is fast gaining prominence among the fine-flavored and health-giving fruits of the tropics. This is brought about in part by the increased appearance of the melon-like fruit on the markets and the food and drink products manufactured from the fruit pulp appearing in food stores and drink stands. Information concerning its history, qualities, culture and future possibilities are eagerly being sought by the public. This short paper can but briefly touch the most important and interesting points concerning the papaya.

The papaya (*Carica papaya* L.) is native to tropical America, probably in

the vicinity of Mexico. Due, no doubt, to the considerable length of time its seed remains viable, and to the ease with which it is propagated by means of seed, the papaya was rapidly disseminated through the humid tropics of the Eastern Hemisphere once the discovery of the American continents brought it to the attention of explorers. It has always been a common fruit in the diet of its native home, and soon became highly esteemed among the cultivated fruits of such lands as Hawaii, Ceylon, India and other tropical islands of the Pacific. In a goodly portion of the tropics, the finer flavored types of papaya began

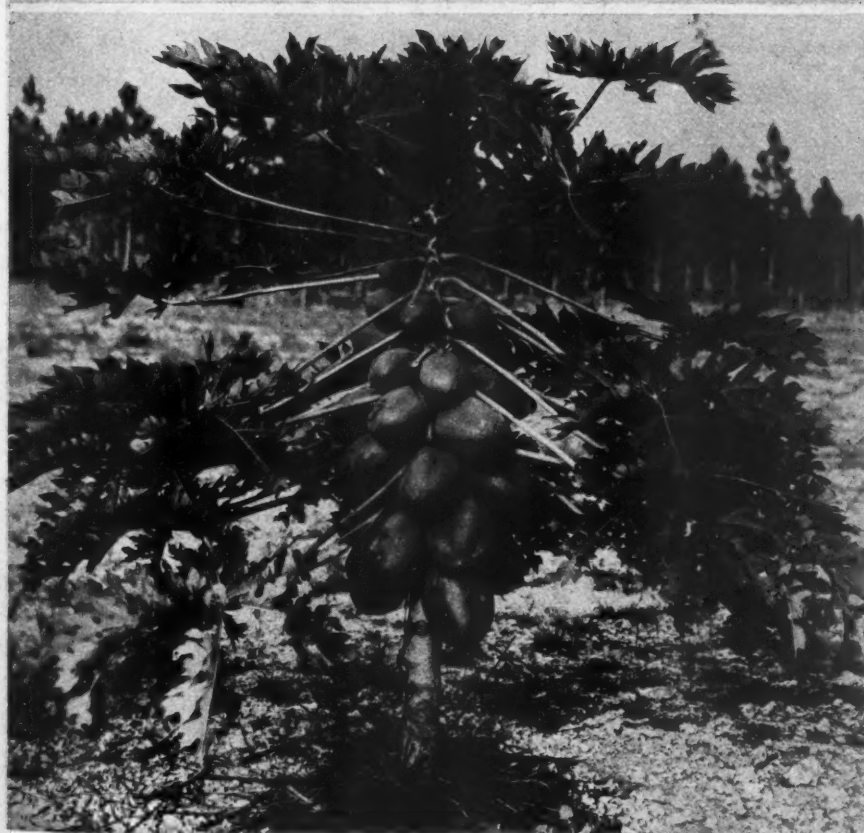
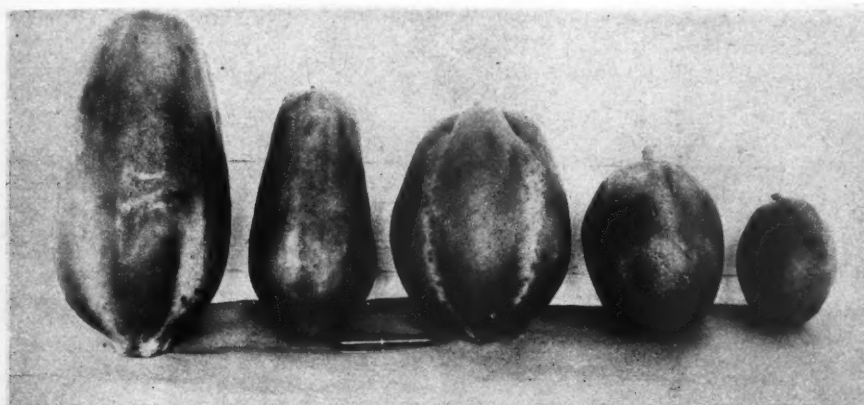
replacing the cantaloupe and melon so important in the diet of civilized man.

According to Higgins and Holt, there is no fruit grown in the Hawaiian Islands, with the exception of the banana, that means more to its people than the papaya, if measured in terms of comfort and enjoyment furnished to the people as a whole. In the United States, and in Florida particularly, the papaya has been grown for its fruit by a considerable number of people for about 50 years. But it is during the last two decades that it has been grown with the thought of sale to the public, and grown in quantities large enough to warrant the establishment of market demand.

The papaya plant is very susceptible to cold injury. In the United States, it can be grown safely in extreme South Florida and in some of the more protected locations in Central Florida. In these areas, the farmers are taking a decided interest in papaya culture. A considerable acreage is being planted, and plans are under way for additional plantings.

The papaya is a giant herbaceous plant, with usually a single branchless tapering trunk varying in height from three to 20 feet, bearing at its top large, deeply lobed leaves sometimes two feet across upon hollow petioles two feet or more in length. "Palm-like" is a common description of its general appearance. The roundish to cylindrical melon-like fruits are borne on short stems in the axils of the leaves. The fruits vary in size from a few ounces in weight, with a thin flesh and a comparatively large central cavity, to 25 pounds in weight, with a flesh from one and one-half to two and one-half inches thick and a relatively small cavity. The texture of the flesh is similar to that of a cantaloupe, yellow to reddish orange in color, with a sweet musky flavor. The small numerous black seeds are borne on a thin membrane attached to the inner surface of the flesh. The very thin green cuticle or skin changes to a greenish yellow or orange color when ripe.

(Continued on page 16)



Left, top—Several types of papaya fruit. The three fruits on the right were borne on female trees; the two on the left, on monoecious trees. The larger type (seven to 15 pounds) is most generally used in the processing plants.

Left, bottom—Female papaya tree in fruit. Fruits weigh from two to six pounds apiece.

# A CAMERA COURSE IN PRUNING



**SUCCESSFUL** application of skilled pruning, one of the oldest of the horticultural arts, to many of the present-day fruit production problems is becoming increasingly important as the need for better quality, controlled cropping and tree training for efficient pest control and harvesting becomes more and more apparent. What pruning practices will be followed depends upon the operating systems followed in the individual orchards and the ideas of the growers. There are, however, certain fundamentals that apply to any pruning system or type. Some of these are pictured on this page.

**1** Much can be done with hand shears to clean out small, thin wood that produces only poor fruit, yet is a continual drag on food materials produced by the tree.

**2** Lopping shears come into use when branches are too large for hand pruners. Careful selection of secondary framework branches gives definite shape to the tree.

**3** Many growers prefer to let several branches grow on young trees. This pruner has selected a leader branch and is removing branch which forms the bad crotch.

**4** Continuing work on same tree shown in picture 3, the excess wood is being removed to prevent rubbing of branches. This shows where branch was sawed off.

**5** A practice popular in many sections where codling moth is serious is tree scraping to eliminate overwintering places for larvae of this troublesome orchard pest.

**6** Close, clean cuts are the rule for any pruning operation. Care must be used when sawing to prevent splitting of the bark on the remaining permanent branch.

**7** Much climbing, sometimes dangerous, is eliminated by skilled use of pole pruners. They permit speedy, selective cutting out of unwanted tree parts from ground.





# PRUNING

## PURPOSES AND POINTERS



Years of experience bring to the skilled pruner a sense of security when searching through trees for weak, straggly wood, and training the tree to desired type of growth.

**O**VERSHADOWED by an avalanche of talk and discussion on marketing, on new methods of planting and on other subjects that perhaps at the moment seem more important, pruning has been forced into a back-seat position. Yet, as if attempting to gain its rightful place in the spotlight of fruit grower attention, pruning has taken an unquestioned place as one way to better regulate year to year production and, of equal importance, an already established way to cut down production of market-ruining cull apples.

In his new bulletin on pruning, Warren P. Tufts of the University of California Department of Horticulture appropriately gives as one of the five purposes of fruit tree pruning, "To regulate the annual succession of crops in order to obtain the maximum average crop compatible with good fruit."

By thus assigning to pruning a task that will go a long way to eliminate our alternate "famine" and "glut" harvest seasons, Tufts has placed a trust in this oldest of fruit cultural practices that can be successfully fulfilled only if growers conscientiously carry out their pruning operations. The other purposes and the reasons why expert pruning has lived through the ages are listed by Tufts as follows:

"To produce a vigorous, mechanically strong, healthy tree. To secure

a tree well shaped for convenience and economy in orchard management. To distribute the fruiting area well over the tree. To secure fruit of good size and quality."

There are growers who will wholeheartedly endorse the last-mentioned pruning purpose. These men sincerely believe, and have proved to themselves and others, that careful pruning, especially the removal of weak, straggly wood, means that there will be fewer small, poorly-shaped fruits at picking time. And when there is less of this "buck-shot" and a higher percentage of top quality, top size, profit making fruit, whatever extra work might be connected with planned pruning is well spent.

Of the different questions that come up when pruning is discussed, the matter of when to do the work probably is discussed most. Some growers are convinced that pruning can be done at any time. No doubt they are influenced by the old saying, "Summer prune for fruit and winter prune for wood." Or perhaps the old axiom, handed down from generation to generation in many a fruit section, which goes, "Prune when the knife is sharp," has had some influence on these growers.

By and large, however, growers and professional horticulturists are agreed that pruning of deciduous fruit trees and plants shows best results, with only a few exceptions,

when done sometime between dropping of leaves in the fall and start of growth in the spring; in other words, during the dormant season. Exception to this rule is cutting back or removing all but framework branches on yearling or two-year trees in newly set orchards during the first and sometimes the second summer. This directs full growth energy into desired branches.

There are so many ways of pruning and so many different kinds of fruit, that in order to prevent a jumble of directions, some of the more important pointers that might prove helpful when pruning any fruit tree are given here.

By way of the bulletin mentioned before, Tufts has summed up some facts and pointers for pruning bearing and non-bearing trees. First, he reminds growers that young trees are cut back at planting to balance the top according to loss of roots when dug from the nursery row, and to form a low head for future profitable orchard management. Sunburn may be controlled, in part, according to Tufts, through shading by means of low-headed trees.

Tufts recommends that "Only three main, or primary, scaffold limbs are desirable, and these should be spaced six to eight inches apart at the points where they arise from the trunk. Nursery lateral branches, if

(Continued on page 16)

# A NATIVE SOUTHERN BLUEBERRY AS A POSSIBLE NEW COMMERCIAL CROP

By OZELL ATKINS

Alabama Hillculture Project Leader

THE South's need for crop diversification and soil conservation has spurred research workers in their study of plants native to this part of the country. Results to date in Alabama indicate that the wild Dryland blueberry (*Vaccinium vacillans* Kalm) may have outstanding cash crop possibilities and unusual erosion-resistant qualities. This would adapt it for use on erosive soils on hillsides, known as "hillculture."

From New England to Michigan and southwestward to the Piedmont region of Alabama and Georgia, the Dryland blueberry grows wild. It is a low, much branched, deciduous shrub, normally attaining a height of one-half to one and one-half feet, sometimes growing as tall as three feet or more. Plants in unfavorable places, however, may grow to a height of only a few inches, in which condition they would have some value as a soil binder, but little as a fruit producer. Ordinarily, the Dryland blueberry grows poorly or not at all on limestone and heavy clay soils, which are fairly common in Alabama and some other southern states.

The soil-binding properties of this blueberry are due to the fact that the plant sends out underground shoots a short distance from its base. The bases of these stems which pass through the soil develop a mass of fine roots so that each plant may, under favorable conditions, cover many square feet of ground.

The fruits of the Dryland blueberry are borne in clusters on wood of the previous season's growth and

average approximately three-sixteenths to five-sixteenths of an inch in diameter. In color, the berries are black or blue-black, some having a heavy bloom. The fruit varies in shape, from oblate to ovate, conic or oblong. The flavor is usually excellent. In Alabama, the berries ripen from May 15 to June 10. Since all the berries on the plant do not ripen at the same time, the ripening date is extended over a considerable period of time.

In the Piedmont region of Alabama, the Dryland blueberry is found growing in Randolph, Chambers, Coosa, Clay, Talladega, Tallapoosa, Cleburne, Calhoun and Shelby counties. The fact that this blueberry will grow and fruit in partial shade or full sunlight gives it additional advantages as a possible hillculture plant. In the wild, the Dryland blueberry is found growing on well-drained sites, usually hillsides.

The volume of berries produced in the Piedmont region is considerable, a yearly average of 41,833 gallons of berries being shipped from seven shipping points during the years 1932-37. A survey among commission men who have handled the berries in the past indicates that there is a possibility for a stable and growing market for a specialty item of this nature, if and when it can be produced in volume and standardized as to grade and pack.

In view of the commercial possibilities offered in the Dryland blueberry, a careful, systematic selection and breeding program is being undertaken by the Bureau of Plant Industry of the U.S.D.A., in co-operation with the Section of Hillculture Research of the Soil Conservation Service. This program will follow similar lines as that used with the swamp or Highbush blueberry (*Vaccinium corymbosum* L.) by the late Dr. Frederick V. Coville and his co-workers. The improved Highbush blueberry has become a crop of considerable importance in New Jersey and other states. Up until 1936, approximately 68,000 pedigreed blueberry seedlings had fruited and had been carefully examined to determine which were sufficiently valuable to be propagated and distributed as named varieties. From their work, most of the leading varieties of *V. corymbosum* were developed. A few of the outstanding ones are Pioneer, Cabot, Katharine, Rancocas, Jersey, Concord, June, Stanley and Wareham.

1. A few plants of the Dryland blueberry, approximately 12 to 15 inches in height, growing wild in a woods under partial shade. Note oak leaves near bottom of picture.

2. Root system of the Dryland blueberry. A portion of the soil was removed purposely before this picture and picture 3 were taken.

3. With a root system such as this blueberry possesses, plus a low growing, dense top, little or no erosion can take place.

4. A few plants of this native blueberry with the rhizomes or underground stems exposed.

5. It is from the rhizomes that new plants are formed in all directions from the parent plant, as shown in part in this photograph.

6. The fibrous root system of the Dryland blueberry holds the particles of soil firmly.

AMERICAN FRUIT GROWER

DECEMBER, 1939



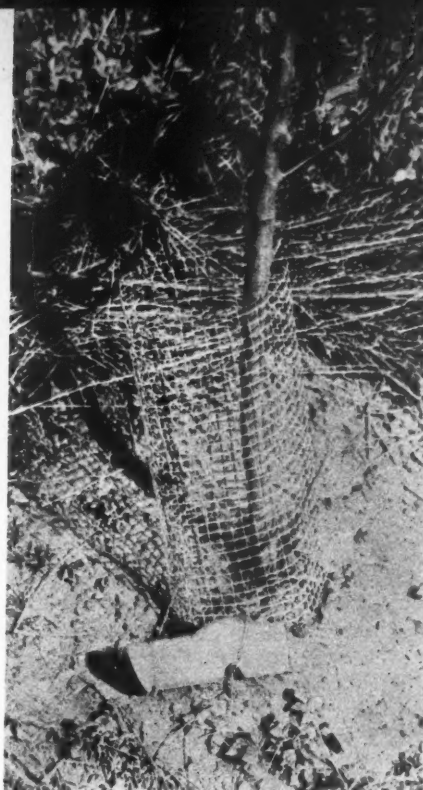
# MOUSE

**W**HAT amounts to almost complete acceptance by fruit growers is the advance of the sod or sod mulch or cover crop-mulch system of soil management for the nation's orchards. Hailed as an innovation a little more than a quarter of a century ago, the use of soil-improving crops, permanent sods and the vast number of variances of these systems is today a reality. Clean cultivation, partly due to emphasis placed on soil erosion, partly because of encouraging results gained by using covers of one kind or another even for peaches, other stone fruits, grapes and brambles, has more or less passed out of the soil management picture except in those sections where certain cultural methods make it a virtual necessity.

While this transformation has come about as the result of trees growing and producing bigger and better crops when supplemental crops are grown, the general use of cover crops has brought up the problem of mouse control in orchards. For mice breed and feed best where they have protective litter such as that provided by heavy orchard covers and mulches. Because of this situation, made worse by the warm falls of the past two seasons which have been favorable for mouse reproduction, research workers connected with the U.S.D.A. Bureau of Biological Survey and various state experiment stations have concentrated their efforts on ways and means of reducing the mouse population in orchards and thus saving fruit growers time and money for tree replacement and bridge grafting and inarch grafting operations.

As Weldon B. Robinson has found at the Poughkeepsie, N. Y., station of the Bureau of Biological Survey, tree girdling mice travel surface runways and usually feed above ground during the summer and fall. When cold weather comes they start burrowing underground and merely go deeper when stopped by wire guards.

Because they burrow below the



Year-around mouse control illustrated above by wire guard, used during summer when mice feed on surface, and glass bait station for protecting poison bait. Bait is the only efficient winter control.

soil surface during the winter, most of the tree damage occurs to roots and crowns of trees, the places where tree repair is difficult. This burrowing habit, then, means that wire guards and tree wraps are helpful during summer and fall, and that the practice followed by some growers of clearing away a portion of the cover about the base of the tree is practically worthless when mice start their underground feeding. Fall disking, Robinson says, is probably worse than no disking at all. When disking is done between tree rows, the mice are driven out of their nests in the middles and, more often than not, establish themselves again under and around the roots of trees where deep disking is impossible.

If these cultural and mechanical practices fail, it is necessary to use the remaining weapon against mice—poison bait. On the matter of mouse control by poisons, Robinson states:

"In any rodent control work it is necessary to have an efficient poison, a bait which is readily eaten by the rodent to be controlled, and an efficient method of placing the baits so as to be accessible to the rodent. The runways of the meadow mouse furnish an ideal and the only logical location for the placement of the toxic baits. Apple has been found to be the bait most readily accepted by the mouse, and phosphorus poisons are the most efficient rodenticides. Thus, a selected phosphorus poison, properly dusted on apple cubes and placed in the runways of the meadow mouse gives the desired control of

# CONTROL

the tree girdling meadow mouse."

Robinson and his co-workers have found that mice start feeding about nine o'clock in the morning, continue at about two-hour intervals and wind up their day's series of frequent meals about four in the afternoon. They consume the largest amount of bait at four o'clock. Any bait put in the runways before this time will be eaten, but if placed after four it will not be fed on until the next morning. Mice seem to relish the apple-phosphorus bait even when it is frozen.

The tree girdling mouse knows no preference when it comes to age of trees attacked. It feeds as much on old trees as on younger stock. While owls, hawks, foxes, skunks, dogs and cats are all friends of the fruit grower because of their feeding on mice, they cannot be depended upon to rid an orchard of this pest. Fortunately, nature keeps mice numbers down, but not enough to prevent their damage to trees unless they are checked by growers. Mice have six or seven litters a year. The offspring begin breeding in five weeks. So there would be more than a million mice a year from each pair if they all survived. Under normal, favorable conditions, mice can reinfest an orchard during a summer season even though it was completely cleaned up the preceding spring.

Robinson explains that any poison works in proportion to the weight of an animal. He reports instances where cats have eaten too many poisoned mice, advises that good cats be locked up for a week or two after placing the bait to keep them out of the orchard until the dead mice have decomposed. Proper placement of the poisonous bait puts it out of reach of cats or dogs, and dogs in most cases won't eat many dead mice. He recommends red squill baits for control of rats and mice around fruit farmstead buildings. The phosphorus is not recommended for rats. Red squill will not harm humans or domestic animals and is effective against rats and mice when used according to manufacturers' directions.



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The chemical composition and physical properties of these products are of the highest quality and effectiveness.

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## **S-W ARSENATE OF LEAD**

Sherwin-Williams Arsenate of Lead is not only a pure product but it is a perfectly balanced standard Arsenate of Lead containing 98 per cent of active ingredients. Tests prove the heaviest deposit is produced by S-W Arsenate of Lead—that is why thousands of growers have demonstrated that Codling Moth can be successfully controlled with S-W Arsenate of Lead and the fruit cleaned to meet the tolerances for both lead and arsenic.

## **S-W SAFE-N-LEAD**

A patented zinc compound in convenient form for use with *arsenates* of lead sprayed on apples and peaches to prevent arsenical injury to fruit and foliage. Its use also improves coverage of arsenate of lead.

## **S-W MULSOID-SULFUR**

Sherwin-Williams Mulsoid-Sulfur is a microfine wettable sulfur (particle size 3 to 4 microns) recommended especially as a spray for peaches to control Brown Rot and Peach Scab and for spraying apples and pears for the control of Scab in the after-bloom sprays. S-W Mulsoid-Sulfur contains 93 per cent of sulfur.

## **S-W BASI-COP (BASIC COPPER SULFATE)**

Sherwin-Williams BASI-COP is recommended for every spraying purpose that formerly called for ordinary copper sulfate. It has been proved to be the best of all the "fixed" copper compounds and better and safer than Bordeaux and Lime-Sulfur in the control of Cherry Leaf Spot. S-W BASI-COP will not dwarf cherries nor cause yellowing, dwarfing or dropping of the leaves. Also recommended for Blotch, Brook's Spot and Bitter Rot on apples; Peach Leaf Curl; Grape Rot; and for spraying potatoes, celery, beans and ground crops of all kinds for control of fungus diseases.

## **S-W NICOTINE SULFATE**

Sherwin-Williams Nicotine Sulfate (40 per cent) is a standard spray for the summer

control of Aphids and Pear Psylla. It is also used extensively as a substitute for arsenate of lead in the control of late-brood Codling Moth with Bentonite and S-W Summer Mulsion—particularly in sections where growers are not equipped to wash their apples.

## **S-W FREE-MULSION**

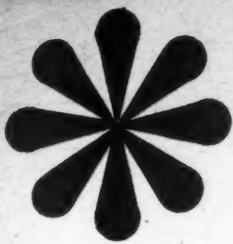
Free-Mulsion is a creamy white concentrated quick breaking oil emulsion used as a dormant spray for the control of San Jose Scale, European Red Mite, Pear Psylla and Apple Leaf Roller. Free-Mulsion contains 83 per cent Petroleum Oil. It is compatible with Lime-Sulfur and Bordeaux mixture in spraying peaches for the control of Peach Leaf Curl.

## **S-W SUMMER MULSION**

Sherwin-Williams Summer Mulsion is a white oil emulsion of creamy consistency recommended in combination with Nicotine Sulfate as a summer spray on apples to control eggs and larvae of Codling Moth.

Apple growers who are not equipped to wash their fruit in order to comply with the tolerances for lead and arsenic residues established by the Federal Food & Drug Administration should use S-W Summer Mulsion combined with Nicotine Sulfate.





# TAKING THE GUESSWORK OUT OF PEST CONTROL

As the world's largest producers of spray and dust materials, The Sherwin-Williams Company is constantly seeking better, lower cost methods for the control of orchard pests. To carry on its research program to aid growers, this company employs a large staff of chemists, besides graduate entomologists, pathologists and horticulturists. These scientists are stationed at strategic points in the fruit growing sections of the country, with every modern laboratory and field facility at hand to serve them in helping growers solve their pest control problems.

Before a single grower is asked to buy a pound of S-W Spray or Dust material, The Sherwin-Williams Company will have spent thousands of dollars of its own money making sure the product will do what is claimed for it.

That is why growers everywhere say:  
"WE HAVE CONFIDENCE

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### S-W DRY LIME-SULFUR

Sherwin-Williams Dry Lime-Sulfur, THE ORIGINAL DRY LIME-SULFUR, is stabilized Liquid Lime-Sulfur in dry, powdered form. It is recommended as a dormant spray for apples, pears, peaches, cherries, plums and other fruits for control of San Jose Scale and Peach Leaf Curl, and as a summer spray for control of Apple and Pear Scab.

### S-W SULFIX SULFUR

For apples, Sherwin-Williams recommends the new scab-controlling, non-russet, non-injurious to foliage spray combination of S-W Dry Lime-Sulfur used with S-W Sulfix Sulfur. This economical combination does away with the use of wettable sulfurs, using Dry Lime-Sulfur as the wetting agent. Use of this summer fungicide combination assures Fine Finish, Fine Color and Healthy Foliage.

### S-W ZINC SULFATE

Sherwin-Williams Zinc Sulfate is available in two grades, one containing 25½ per cent zinc and the other 36 per cent. Sherwin-Williams Zinc Sulfate is recommended especially for use as a spray on peaches to control Bacterial Shot-Hole and as a safener for S-W Arsenate of Lead used on peaches and apples.

### S-W SPRALASTIC

A spreader and deposit builder for use on apples for the control of Codling Moth. It will increase the deposit of S-W Arsenate of Lead on apples 3 to 4 times. Also possesses ovicidal value in the control of Codling Moth.

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# STATE NEWS

**NEW YORK**—Two \$1 bills and a signed pledge, which undoubtedly will have historical significance, adorn a wall in the New York headquarters of the New York and New England Apple Institute, a growers' co-operative organization. The two bills represent the institute's assessment of one cent a bushel on apples grown on President Franklin D. Roosevelt's farm in Dutchess County.

**GEORGIA**—Based on an estimated normal production in 1940, peach growers in the State by November 1 already had pledged \$14,917 to next year's peach merchandising and advertising fund—nearly 50 per cent more than the State's entire pledge for 1939. Whereas during the past season one cent a bushel was spent for promotion, the 1940 contracts call for a two-cent per bushel pledge.

**MARYLAND**—William F. Allen, famous horticulturist and head of the W. F. Allen Company, internationally famed strawberry and small-fruit growers of Salisbury, was recently elected president of the Salisbury Bank, and a vice-president of the County Trust Company of Maryland, of which the Salisbury Bank is a subsidiary. The election filled a vacancy created by the appointment of the former president, John W. Downing, to the office of State Bank Commissioner.



**CALIFORNIA**—Because appearance and quality are outstanding factors in the sale of fruit, any process which will help to preserve these features means a more certain market for the fruit.

Hence, the successful shipment this year by a California concern of 53 cars of waxed nectarines to eastern markets—the first commercial test of waxing this type of fruit—may encourage commercial tests on other stone fruits in the future.

Waxing is primarily of value in reducing water loss from the surface of the fruit. This is especially important in the case of nectarines.

Experimental tests conducted by the College of Agriculture of the University of California at Davis, under the direction of Dr. L. L. Claypool, assistant professor of pomology, led up to this year's commercial trial of waxing nectarines.

**TENNESSEE**—C. C. Cardwell had something to grin about when this picture (right) was taken October 19. His 15-acre orchard, atop a young mountain in Warren County, bore a good crop; he kept it a clean crop, and a clean reputation took it off his hands at a price range of \$1.60 to \$2.50 per bushel.

How? Well, in the first place, "Charlie" has the only commercial apple orchard in the county. He has good varieties: Delicious, Golden Delicious, Winesap and Cortland. He grows them big and clean. (His five entries at the State Fair this year won three firsts, a second and a third!) He picks them at peak maturity, handles them carefully, and puts up an honest, attractive pack. Finally, for maximum profit, he sells them at his door.

He believes in signs. In his shed was a stack of roadside signs which during the

season directed customers to him. He believes that his experience this year is a "sign" that he needs more orchard and is planning substantial new plantings.—A. N. PRATT, State Horticulturist, Nashville.

## XMAS FRUIT PROMOTION

In the pear regions of Oregon, packing houses are busy putting out special Christmas packages of Oregon pears. One firm reports receiving orders for special boxes at the rate of 100 to 150 a day. . . . Because he feels the Christmas card has lost most of its punch, H. Frank Hubbard of Chelan, Wash., this year will send 300 cardboard boxes holding one extra large Delicious apple to his friends. . . . With 40 per cent of the nation's crop of apples being produced in the Pacific Northwest, employees of the Northern Pacific Railroad are being urged by officials of the road to send gift boxes of the fruit to their friends.

**MINNESOTA**—No longer considered desirable for either commercial or home garden planting, Sugar Loaf, King David and Malinda apples were among the 13 varieties of fruits dropped from the recommended list at the annual meeting of the State Horticultural Society which closed on November 16. Hy-slop crab, Champion and Downing gooseberries, Douglas pear, Tonka and Red Wing plums, and Columbian and Plum Farmer raspberries were also dropped from the list. Early McIntosh apple was dropped from the trial list as being not worthy of further testing. Fredonia grape, Taylor red raspberry and Sodus purple raspberry were added to the trial list in fruit districts one, two and three.

The Minnesota Fruit Growers Association, which held its annual meeting in conjunction with the State Horticultural Society, re-elected Henry W. Leidel of La Crescent as president and J. D. Winter as secretary-treasurer, while Al. Loffelmacher of Fairfax was elected vice-president. Arnold Ulrich of Rochester was the proud winner of the annual fruit judging contest sponsored by the association and open to fruit growers of the State.



C. C. CARDWELL, TENNESSEE  
AMERICAN FRUIT GROWER

High light of the banquet of the State Horticultural Society was the presentation to Governor Harold E. Stassen of a box of extra Fancy Delicious apples grown by Henry M. Leidel, together with the largest apple from the fruit show (an 18-ounce Delicious grown by D. C. Webster of La Crescent) for Mrs. Stassen.

Honorary life memberships in the society were presented to Sil. Matzke of South St. Paul, Henry Husser of Minneiska, Francis L. Block of Ortonville, and August Loffelmacher of Fairfax—all pioneer orchardists of the State who have contributed much to the development of orcharding in Minnesota.

In the competitive fruit exhibit at the annual meeting, F. F. Isaacs of White Bear Lake won 10 first awards and five second place; D. C. Webster seven first and five second; Henry M. Leidel six first and five second; Fred Ulrich of Rochester five first and seven second; George N. Pabst of St. Paul six first and two second.

New officers of the State Horticultural Society: Louis R. Fisher of Minneapolis, president; Benjamin F. Dunn of Rochester, vice-president. R. S. Mackintosh was re-elected secretary. The society reports a membership of 5900 this year, highest in the organization's history.—J. D. WINTER, Sec'y, Mound.



**UTAH**—A. C. Page of Payson was doing very well on his 20-acre apple orchard until he took the growers' tour of Washington, Idaho and Oregon, sponsored by the Utah State Horticultural Society.

Before A. C. Page went on the trip, his orchard had the common habit of bearing heavy one year and light the next. He thought this was "natural" and did nothing about it until C. P. Harley at Wenatchee, Wash., showed him how they had broken this biennial habit in apples.

Now Page has his Jonathan and Delicious orchard bearing big crops every year, and he did it by early thinning and fertilizing, as Experimenter Harley suggested.

This is only one of the many ideas A. C. Page brought back from the trip, which he claims has paid him well for the time and money spent making it. Such trips are an important activity of our society.—A. STARK, Sec'y, Logan.

**ARKANSAS**—The father of the grape industry in northwest Arkansas, Carl A. Starck, died on November 7 at the age of 81 years. A native of Evansville, Ind., Starck with his mother, brother and two sisters homesteaded land east of Rogers 51 years ago, the family ultimately accumulating 1000 acres.

Soon after arriving, Carl Starck began developing grapes and he domesticated the Cynthiana, a wild grape of the Ozark Mountains. Wine made from the Cynthiana by Mr. Starck won highest honors for its flavor and bouquet in a world exposition of wines held in Vienna a quarter of a century ago. This demonstration of grape culture caused a colony of Italians to leave southern Arkansas and establish Tontitown, in Washington County, noted for its excellent vineyards.



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## PAPAYA IN FLORIDA

(Continued from page 7)

The sex behavior of the papaya is very unstable. It appears both in dioecious form (staminate and pistillate flowers on different plants) and in the monoecious form (both sexes in the same flower). This unsteadiness of sex causes difficulty in producing successive crops of similar type fruit. Breeding work tending toward the establishment of uniform strains is being carried on at the Subtropical Experiment Station.

A study of the constituents of the papaya flesh shows that, like most other fruits, its chief component is water. According to Stahl's analyses of several Florida-grown papayas, the components, given as percentages by weight of the fresh pulp, are as follows: moisture 90 to 92 per cent; acid 0.1 to 0.2 of one per cent; protein 0.2 to 0.3 of one per cent; ash, which is an indication of its mineral content, 0.25 to 0.5 of one per cent; and sugars five to six per cent. The abundant sugar content of the papaya is almost entirely simple fruit sugar. Starch is entirely absent in both green and ripe fruit.

Several vitamins are abundant in the papaya fruit grown in Florida. Fresh pulp, according to Abbott, is a good source of vitamin A, contains vitamin B and is an excellent source of vitamin C. The papaya is considered one of the richest sources of vitamin A among the fruits grown in Hawaii.

An enzyme called "papain" is present in the juice of the papaya fruit and also in the sap of the vegetative parts of the plant. This proteolytic enzyme is a digestant similar in action to the pepsin in the stomachs of higher animals and to trypsin, present in the pancreatic juice of animals. Many of the digestive aids found on the market contain papain, as do many chewing gums and meat tenderizers. A common practice in the tropics, among the natives, is to rub a piece of tough meat with the juicy flesh of a green papaya fruit some little time before the meat is to be cooked.

The papain content of the fruit is thought to decrease considerably as ripening progresses. However, the presence of papain, the rich vitamin content, the absence of starch, the high fruit sugar content and its sweet musky tang, have made the papaya ideal for use as a fresh fruit and has given the cue to the processors for preparing numerous food and drink products.

The papaya thrives under cultivation. Some six to 10 weeks after the seeds are planted the young plants four to six inches high are set in the field. At least three plants are set to the hill to insure one good bearing plant per hill. The undesirable plants in each hill are cut down when the first blossoms indicate their sex. In case of dioecious forms, about one male plant to each 20 females is allowed to stand to insure satisfactory fruitfulness. The hills per acre vary from 450 to a maximum of 550.

The picking of mature fruit begins in 10 to 12 months from the planting of the seed and continues for six to eight months. By this time the trees have reached a height of eight to 10 feet and the fruit size has diminished appreciably. The young plants set in between the old plants, three or four months earlier, are becoming crowded. The old trees are cut down and a new planting of papayas is well on its way. The papaya tree will bear for three or four years but it is found to be more economical to treat the plant as an annual. The first crop is the largest, with the finest fruit, and easiest to handle culturally.

The future of the papaya in Florida as a crop to be grown commercially holds assurance of being successful. But before it can become well established and hold its markets as do such fruits as oranges and apples, considerable work must be done on the breeding, culture and disease and pest control of the papaya.

## NEW NAI TREASURER

C. E. DUTTON, manager of the Ohio Orchard Company near Milford Center, Ohio, has been appointed treasurer of the National Apple Institute, a post made vacant by the recent death of W. B. Baughman. Dutton, who started his fruit growing career as manager of the Sandhill Orchard at Carroll, Ohio, after graduating from Ohio State University in 1917, has been with the 150-acre Ohio Orchard Company since 1922. He also directs operation of the 100-acre Melrose Orchard Company at Wooster, Ohio. Dutton is a strong advocate of apple promotion. He has been carrying on an active advertising campaign for Ohio Orchard Company apples in newspapers of surrounding towns for the past several years, and is prominent in work of the Ohio Apple Institute.



C. E. DUTTON

## PRUNING

(Continued from page 9)

properly distributed, may be utilized in forming the head of the tree at planting time. Five to seven primary and secondary scaffold or framework branches at five feet from the ground are sufficient for a mature tree. After securing the desired number of scaffold branches, together with the proper spread, it is useless, except with certain kinds and varieties, to head back the young tree again."

Other pertinent observations set forth by the Californian include: Lightly pruned trees have stockier and stronger branches than heavily pruned trees. The more lightly a tree is pruned, the greater the development of both top and root. Cutting any branch or part of a tree heavily lessens total growth in that branch or part, while light pruning increases the total growth. Lightly pruned trees come into bearing one to three years earlier than similar trees that have been heavily pruned, and this earlier bearing does not interfere with future production.

If new growth on bearing trees is longer than it should be, considering growing conditions and fruit production, the previous pruning has been too severe. Tufts maintain. And, vice versa, if the new growth is shorter than that which tends toward good tree growth and production capacity, heavier pruning should be tried, unless the poor growth is caused by a lack of plant nutrients.

Besides shaping and heading back, Tufts states that pruning of bearing trees should include adequate thinning out of fruiting shoots, to be followed, where necessary, by hand thinning of fruit. Pruning must be done so a good supply of light is admitted to all tree parts. Larger limbs are spaced far enough apart that developing fruiting wood is not cramped. One of the most important functions of pruning of bearing trees is the elimination of conflicting tree parts, dead wood and diseased or insect-infested branches.

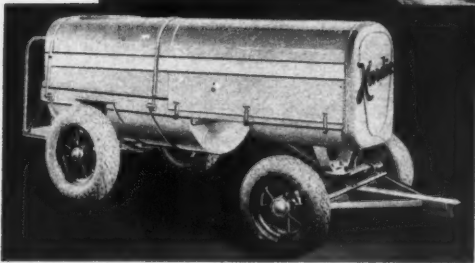
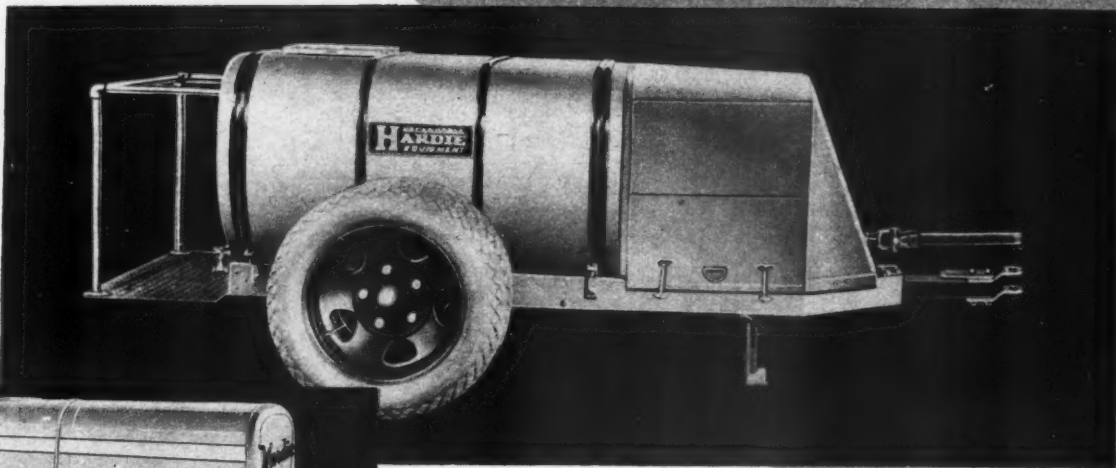
Much interest has been given to keeping trees low for better pest control and easier picking. This can be done by regularly cutting back the tallest branches to strong outward-growing laterals. Often told, but still important, is the caution, "leave no stubs, make cuts close and clean." It is important, in the first place, to plant trees so they will have plenty of room to grow.

As the last statement in his informative bulletin, Tufts writes, "Careful pruning, though important, will not compensate for the neglect of fertilization, cultivation, spraying, fruit thinning, irrigation, or other phases of orchard management."

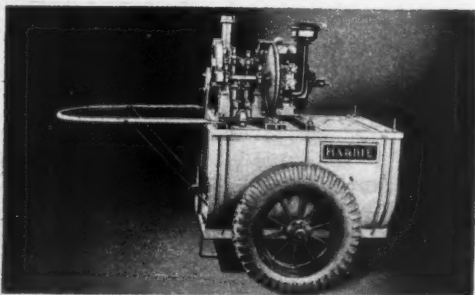


# What sprayer is bigger and stronger than any other of equal rating . . . .

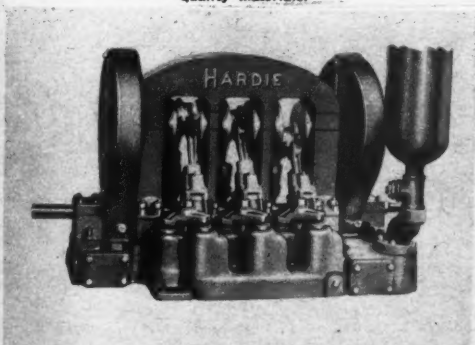
Hardie builds Tractor Trailer sprayers in a wide variety of sizes for use with all popular farm tractors. You save the cost of an engine when you buy this type.



Hardie engine-powered outfits are equipped with interchangeable steel or wood tanks and interchangeable steel or rubber-tired wheels. Typical Hardie orchard sprayer. Below—a new low cost outfit for small acreages.



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Hardie sprayers are rated at the capacity and pressure delivered easily and at slow speed. That's why the Hardie pump of any given rating is so much bigger and stronger than other pumps rated at the same figures. Compare any Hardie with any other pump of equal rating. Note the difference in the size of the pump. See how much bigger are the plunger cylinders in the Hardie, note the rugged base, the rigid frame, the big bearings.

Then you will understand why Hardie owners find their sprayers so dependable, trouble-free and durable. Then you will know why Hardie owners find upkeep cost negligible even after years of hard use.

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Use

For Dormant Sprays

## MICROGEL

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A neutral Copper Fungicide suitable for mixing with Oils.  
 An amorphous Powder containing 50% Copper as Metallic.  
 Write for Free Bulletin

Manufactured by **TENNESSEE CORPORATION**  
 ATLANTA, GEORGIA

### BOOKS FOR FRUITMEN

**FRUIT AND VEGETABLE JUICES**, By D. K. Tressler, M. A. Joslyn and G. L. Marsh, 1939, Avi Publishing Company, Inc., New York.

The manufacture of fruit and vegetable juices was classified not so many years ago as a by-product of those crops. Today it is rapidly becoming an important major enterprise. There is, and should be more, emphasis on this subject than ever before. England, France and some of the other foreign countries have been developing the juice and concentrate side of their fruit and vegetable industry for many years. Just recently, the nutritive value of fruit and vegetable juices has been the subject of much discussion, as well as of considerable investigation.

This comprehensive and very practical contribution to this general subject, just published, can well find its way into the library of all progressive fruit growers. D. K. Tressler of the New York Experiment Station and M. A. Joslyn and G. L. Marsh, both of the California station, are well-known authorities in the field, and we predict a considerable demand for this 549-page volume, since it fills a long-felt need.

The first part of the book is concerned with the principles of fruit and vegetable

juice preparation and a summary of the tested and standard procedures in their preservation. The equipment necessary in the processes of preparation, packing and preserving of juices is described and discussed. A very large amount of the work on the nutritive value of juices is reviewed and summarized. The concentration of fruit juices by removal of water by the freezing process and also as vapor by evaporation are described.

The more important fruit concentrates and their preparation, preservation and utilization are described separately. The sections on powdered fruit juices and syrups, though short, seem quite worthwhile in such a book. The chapters on fruit juice beverages and utilization of fruit waste will be of considerable general value. After reading the chapter on wastes, one cannot help but feel that probably we are not taking full advantage of the many by-products which can be made from otherwise wasted materials. The authors state: "The manufacture of by-products usually is considered profitable only when it is regarded as a means of salvaging fruit waste of no value. However, the manufacture of salable by-products is often the most profitable means of disposal of fruit wastes, which would otherwise constitute a public nuisance."

### APS CONVENTION PROGRAM

**THE** American Pomological Society and the Massachusetts Fruit Growers' Association have practically completed arrangements for their annual joint convention. The program is the result of cooperative effort of the two organizations. It is built around the most interesting problems of the day. Remember the place: Worcester, Mass.; the time: January 2 to 5, 1940; hotel headquarters: Bancroft Hotel.

Note this: A special American Pomological Society meeting is to be held on January 2. Heretofore noontime luncheon sessions have been featured during which the necessary and important business of the APS has been conducted. Such an arrangement, while very successful and popular, made the day too long. This year, to avoid a too strenuous session by holding meetings throughout the day, it has been deemed wise to post January 2 as a day of special features and for conducting the business affairs of the society.

January 3 will be Marketing Day. The program includes the following commitments.

#### Marketing Day Program

**Apples for Health: Good Advertising.** Dr. H. E. Barnard, Research Director, National Farm Chemurgic, Columbus, Ohio.

**The Place of Regional Institutes in Promoting Apple Sales.** John Chandler, President, New York-New England Apple Institute, Sterling Junction, Mass. **The Place of a National Apple Institute in Promoting Apple Sales.** Truman Nold, Manager, National Apple Institute, Indianapolis, Ind.

**Effective Apple Advertising.** Major C. E. Chase, Manager, Washington State Apple Advertising Commission, Wenatchee, Wash.

**The Grocer Speaks: What Growers Might Do to Increase Apple Sales.** C. B. Denman, Agricultural Counsel for Chain Store Group, Washington, D. C.

**The Grover Speaks: What Grocers Might Do to Increase Apple Sales.** Thomas H. O'Neill, General Manager, New York-New England Apple Institute, New York, N. Y.

**Unit Packages and Special Devices.** W. B. Farmer, Hampton Falls, N. H.

**Governments Step In by Invitation.** For United States—S. L. Thompson, U. S. D. A.

**For Canada—Col. R. L. Wheeler,** Marketing Service, Dominion Department of Agriculture, Ottawa, Canada.

**An Orderly Apple Industry.** B. S. Pickett, President, American Pomological Society; Head, Department of Horticulture, Iowa State College, Ames, Iowa.

January 4 will be Orchard Management Day. A series of short talks by growers on some of the things these growers do particularly well will be presented. In the afternoon, grades and grading will be discussed in an attempt to simplify grades and increase their use.

January 5: Nutrition of the Apple Tree will furnish subject matter for Dr. A. B. Burrill of the New York Agricultural Experiment Station, who will present the boron deficiency problem. Dr. J. R. Magness of the U.S.D.A. will present an always timely subject: The Nitrogen and Moisture Relationships in the Orchard. During the afternoon orchard pests and troublesome spraying problems in the Northeast will receive attention.

The fruit growers' banquet Wednesday night will be a feature. Samuel Fraser of the International Apple Association who is well known in marketing and fruit grower circles is a scheduled speaker.

Final program will be announced through the press as soon as it is fully arranged. —H. L. LANTZ, Sec'y, Ames, Iowa.



## CALENDAR OF COMING MEETINGS and EXHIBITS

- Dec. 1-2—Montana Horticultural Society 43rd annual meeting, Stevensville.—Geo. L. Knight, Sec'y, Missoula.
- Dec. 3-7—Vegetable Growers Association of America, Inc., 31st annual convention, Hotel Sherman, Chicago, Ill., in co-operation with Illinois State Vegetable Growers Association 9th annual convention.—H. D. Brown, Sec'y, Columbus, Ohio.
- Dec. 4-6—Washington State Horticultural Association 35th annual meeting, Wenatchee.—J. C. Snyder, Sec'y, Pullman.
- Dec. 4-7—Annual Fruit School, Ohio State University, Columbus, Ohio.—J. H. Gourley, Dept. of Horticulture, in charge.
- Dec. 5-7—Michigan State Horticultural Society annual meeting and apple show, Civic Auditorium, Grand Rapids.—H. D. Hootman, Sec'y, East Lansing.
- Dec. 5-7—New Jersey State Horticultural Society, Haddon Hall, Atlantic City.—Arthur J. Farley, Sec'y, New Brunswick.
- Dec. 5-7—Virginia State Horticultural Society 44th annual meeting, Hotel Roanoke, Roanoke.—W. S. Campfield, Sec'y, Staunton.
- Dec. 6-7—Oklahoma Pecan Growers Association annual meeting, Tulsa.—Frank B. Cross, Stillwater.
- Dec. 7-8—Kansas State Horticultural Society annual meeting, Wichita.—Geo. W. Kinkade, Sec'y, Topeka.
- Dec. 7-8—Oregon State Horticultural Society annual meeting, Hood River.—O. T. McWhorter, Sec'y, Corvallis.
- Dec. 12-13—Connecticut Pomological Society 49th annual convention, Foot Guard Armory, Hartford.—H. C. C. Miles, Sec'y, Milford.
- Dec. 12-13—Horticultural Society of Northern Illinois annual meeting, Rockford.—O. H. Waddell, Sec'y, Davis Junction.
- Dec. 12-14—Nebraska Horticultural Society annual meeting, Lincoln.—E. H. Hoppert, Sec'y, Lincoln.
- Dec. 13-15—Peninsula Horticultural Society annual meeting, Easton, Md.—T. F. Manns, Sec'y, Newark, Del.
- Dec. 14—Rhode Island Fruit Growers Association program meeting, Governor Dyer Market, Providence.—E. P. Christopher, Sec'y, Kingston.
- Dec. 14-15—Horticultural Society of Central Illinois annual meeting, Quincy.—Leo J. Hagemann, Sec'y, Peoria.
- Jan. 3-5—American Pomological Society annual convention, in joint session with Massachusetts Fruit Growers Association, Worcester, Mass.—H. L. Lantz, Sec'y, APS, Ames, Iowa; W. R. Cole, Sec'y, Massachusetts Fruit Growers Assn., Amherst, Mass.
- Jan. 3-5—Illinois State Horticultural Society 84th annual meeting, State Armory, Champaign.—J. B. Hale, Sec'y, Kell.
- Jan. 4-5—Maryland State Horticultural Society annual meeting, Hagerstown.—A. F. Vierheller, Sec'y, College Park.
- Jan. 9-11—Indiana Horticultural Society annual meeting, Lafayette.—R. L. Winklepleck, Sec'y, Lafayette.
- Jan. 9-12—New York State Horticultural Society 85th annual meeting, Rochester.—Roy P. McPherson, Sec'y, LeRoy.
- Jan. 16—Arkansas State Horticultural Society 60th annual meeting, Springdale.—J. L. Murray, Sec'y, Garfield.
- Jan. 16—Vermont State Horticultural Society annual meeting, Burlington.—M. B. Cummings, Sec'y, Burlington.
- Jan. 16-18—Pennsylvania State Horticultural Association annual meeting, Harrisburg, in connection with Pennsylvania Farm Show.—J. U. Ruef, Sec'y, State College.

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MODEL H**

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Practically Seedless — Bartlett quality. Scarff's "Sweet September" — Sensational New Fall Bearing Cherry. Fruits bright red, meaty, delicious. Trees bear at an early age. Also largest and most productive varieties of Raspberries, Currants, Gooseberries, Blueberries, Boysenberries, special list of Ornamental Fruits, Hardy Nuts, etc. Send now for new Catalog.

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Be the first to raise CULTIVATED BLUEBERRIES. The coming sensation. Very ornamental. Exquisite white blossoms; leaves change from green to red; grows 5 ft. tall. Eat delicious jumbo sized berries with cream. Two to four bushes will supply average family with mouth-watering blueberry pies all season. Big money-maker for planters. Sell from 50c to 75c a quart. Fully described in our catalog of over 100 real bargains in plants, trees and shrubs. Write now. The Ackerman Nurseries, Box 15, Bridgman, Mich.

- Jan. 17-18—Maine State Pomological Society winter meeting, Lewiston.—E. L. White, Sec'y, Bowdoinham.
- Jan. 18-19—Missouri State Horticultural Society 81st annual meeting, Columbia.—W. R. Martin, Jr., Sec'y, Columbia.
- Jan. 24-26—New York State Horticultural Society eastern meeting, Kingston.—Roy P. McPherson, Sec'y, LeRoy.
- Jan. 29-Feb. 2—Ohio State Horticultural Society annual meeting in connection with Farmers' week, Ohio State University, Columbus.—F. H. Beach, Sec'y, Columbus.
- Feb. 7-8—West Virginia Horticultural Society 47th annual meeting, Martinsburg.—Carroll R. Miller, Sec'y, Martinsburg.

## INVENTS GAS SAVER FOR AUTOS

A new invention called the Supercharging GAS-MISER has been thoroughly tested by Mr. E. B. Moles of 626 Pierce St., Sioux City, Iowa who reports remarkable savings in gasoline and oil. It is reported the GAS-MISER not only saves up to 25% in gas and oil, but also creates a scientific supercharging action that increases power and pep. This device is fully automatic and is easily installed in any auto or truck in a few minutes. Mr. Moles wants Agents and Distributors and is willing to send a free GAS-MISER sample offer to anyone interested. Write him today.

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DAVIS GUARANTEES YOU 95 OUT OF EACH 100 sexed chicks will be true to sex. We also expect you to raise 95 chicks out of each 100. If you fail you are then protected by our 14 day iron clad guarantee. DAVIS prices are always low and quality high. We are regularly furnishing our thousands of customers good broilers and laying stock at low prices. Write at once for our big new 24 page free catalog and complete price list and early order discounts.

Here is what one of our customers has to say about DAVIS CHICKS: "Rosedale, Indiana. Gentlemen: Mortality percentage for 15 consecutive shipments of White Rocks from you has been 3.19% to broiler size or for about 12 weeks. The other hatcheries tried, including some of the better known ones, range from 4.3% up. We have tried exactly 36 hatcheries including yours. I have received a shipment and killed 10% of it before starting them, as compared with no culls from your hatchery. Yours W.F."

Give us your order this year and be sure of satisfaction, profits, and success. DAVIS POULTRY FARM, Rt. 3, Ramsey, Indiana.

COCKEREL CHICKS FOR BROILERS \$3.45-100. Write once, reliable, wants foreman's place or management of from 1c to 3c per chick by ordering direct from me. CONRAD'S JACKSON COUNTY HATCHERY, Box 17, Seymour, Indiana.

MAKE MONEY WITH POULTRY. READ AMERICA'S leading poultry magazine for latest information. Three years \$1.00; nine months 50c. POULTRY TRIBUNE, Dept. C-57, Mount Morris, Illinois.

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BEEES—GOOD SIDE LINE PLEASURE. PROFIT. Send \$1.00 for book "First Lessons in Beekeeping" (new edition), and one year subscription. Catalog free. AMERICAN BEE JOURNAL, Box G, Hamilton, Illinois.

### DAIRY CATTLE

FANCY DAIRY HEIFERS \$12.00. SHAWNEE DAIRY CATTLE COMPANY, Lancaster, Pennsylvania.

### FACE PROTECTORS

USE E-Z-"C" FACE PROTECTOR FOR SPRAYING lime, sulphur, oil, etc. Special E-Z-"C" feature provides clear view continuously. Protects lungs. See display ad Page 16. Write CESCO, 2308 Warren Blvd., Chicago.

### FOR SALE

120 ACRE ORCHARD, 17 YEARS OLD, ON MAIN highway Reading to Philadelphia. Five miles from Reading, forty miles from Philadelphia. Fine local markets. Best commercial varieties Apples and Peaches. Large stone dwelling with bathroom and other conveniences. Two barns. Price \$25,000 including machinery consisting of two Bean Sprayers, two trucks, one Case Tractor, Four Ton York Refrigeration Unit and various other equipment. Easy terms. APPLY 605 Colonial Trust Building, Reading, Pennsylvania.

FORTY ACRES PEACHES, APPLES. GOOD SITE on paved road near Vincennes. 1909 Elberta; 600 Duchess. Three successive peach crops. Apples bearing regularly. House and packing house \$12,000.00. SIMPSON ORCHARD COMPANY, Vincennes, Indiana.

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MOTHERS—SPECIAL WORK. UP TO \$22 A WEEK. No house-to-house, experience or investment. Give age, dress size. HARTFORD, Dept. A-153, Cincinnati, Ohio.

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MAKE UP YOUR CLUB AND SEND TO COUCH MAGAZINE AGENCY, Ithaca, New York, for lowest prices ever. List free.

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EVENTUALLY YOU'LL LIVE IN FLORIDA. KEEP in touch with its agricultural opportunities by subscribing to its leading citrus and truck magazine. 50c per year; 3 years, \$1.00. FLORIDA FARM AND GROVE, Jacksonville, Florida.

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FRUIT TREES: "ERLY-RED-FRE" (PLANT PATENT 230), our introduction, unchallenged as America's earliest freestone commercial peach; "COLORA," our hardest commercial peach; Fisher, Golden Jubilee, Fair Beauty, Vedette, Hale Haven, Valiant, all in Bountiful Ridge selected strains, offer the greatest succession of peaches available. "WHIXPARENT" (patent applied for)—our introduction as America's earliest commercial apple; Bountiful strains "Improved Winesap," Bichard, Blaxtman, Red Warrior, and other improved fruits lead the march of progress in the commercial fruit world. We are recognized leaders in fruit trees and berry plant production and offer today America's greatest values in hardy—thrifty—dependable stock. Send for our latest fall catalog. BOUNTIFUL RIDGE NURSERIES, Dept. F-129, Princess Anne, Maryland.

HALF MILLION FRUIT TREES READY THIS FALL. New low prices. Quality stock. Fruit nurseries since 1866. HOOD'S OLD DOMINION NURSERIES, Richmond, Virginia.

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GEORGIA PAPER SHELL PECANS: NEW CROP—10 lbs.—\$2.00; 100 lbs.—\$12.50 Prepaid. List free. DIXIE PECAN CO., Quitman, Georgia.

AMERICAN FRUIT GROWER

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### POULTRY

NEW ENGLAND POULTRYMAN AND NORTHEASTERN Breeder Special offer during the chick season. Six months for 25c, one year for 50c, usually \$1.00 per year. Interesting news and views. Valuable editorial material on skillful breeding, profitable production, and efficient marketing. Carefully censored advertising. Nationally tested by poultry leaders. Subscribe now! NEW ENGLAND POULTRYMAN, 4F Park Street, Boston, Massachusetts.

### SALESMEN WANTED

SALESMEN WANTED. FRUIT TREES FOR COMMERCIAL orchardists. Write for prices. SOUTHERN NURSERY COMPANY, Winchester, Tennessee.

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"EVERWEAR" SILK HOSIERY—FIVE PAIRS—\$1.00 (three full-fashioned pairs, \$1.25). DIXIE, AFRIW, Broad, Savannah, Georgia.

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WILL HAVE MILLIONS YELLOW FREE BLAKEMORE Strawberry Plants for setting Spring of 1940. Write for prices. B. R. MCUMBER, Greenfield, Tennessee.

200 YELLOW FREE BLAKEMORE OR DUNLAP plants delivered, \$1.00. Free catalog on Strawberries, Nectar-berry, Boysenberry and Fruit Trees. WALLER BROS., Judsonia, Arkansas.

CERTIFIED FAIRMORE, DAYBREAK AND ELEANOR Roosevelt strawberry plants. FUSSELL BROTHERS, Teachers, North Carolina.

## CARE OF NUT TREES

AT the recent Rockport, Ind., meeting of the Northern Nut Growers Association, C. A. Reed of the U.S.D.A. discussed some of the factors involved in the successful cultivation of nut trees in the home orchard.

Climate has a marked influence on tree growth and production, and only those species which have demonstrated their ability to thrive in the region where they are to be grown may be planted with any certainty of success. Poor soils are not suited to nut trees, and only the rich deep soils are suitable for the better species of walnuts and hickories. The tree trunks of all young nut trees, especially if they are tall and exposed, should be protected from the hot sun. This may be done by wrapping with burlap, heavy paper, or a bundle of corn stalks on the south side.

All nut trees require full sunshine for good cropping. Close planting and the consequent shading of the lower limbs results in decreased yields. Trees growing by themselves in the open often bear unusually heavy crops. The walnuts, hickories and pecans need from 50 to 75 feet between trees in both directions, chestnuts and Japanese walnuts from 40 to 60 feet and filberts from 25 to 30 feet.

The cross-pollination requirements of all the nut tree species and varieties have not been well worked out. At the present time it is sound practice to interplant different varieties of each species to provide for cross-pollination.

No predictions may be made as to possible crops from dooryard nut trees, but since such trees usually receive good care, better than average crops may be expected. Trees grown in poultry yards yield heavy crops and provide shade for the fowls. Whatever the crop, it is more than will be obtained from ordinary ornamentals.

Persons contemplating family plantings of nut trees may consult Mr. Reed as to the best varieties for their section of the country. A list of nurseries specializing in grafted improved nut tree varieties may be had from: GEORGE L. SLATE, Sec'y, Northern Nut Growers' Assn., Geneva, N.Y.

DECEMBER, 1939



# NEW

- SPRAY GUN
- DOG TAG
- HAND SHEAR

By HANDY ANDY

A real help to those who have wood-burning fireplaces in the home or to anyone who frequently works around an open flame is a recently announced set of asbestos gloves. No matter how close hands get to the flame, these gloves protect against burning. And they're made to fit with a reasonable amount of tightness so fingers can be used without danger of dropping objects at the wrong time. Uses so far suggested for the new gloves include making campfires, refueling fireplaces, furnaces and stoves and for protection when sterilizing canned foods.

## SPRAY GUN •

Here's a John Bean spray gun that really looks like a gun. Designed with an oversize pistol-grip, the gun is easily grasped in the hand. Output is controlled by a special trigger mounted in the grip. Regulation of spray material flow is accomplished by turning a section of the gun's "barrel" so that while both hands give support, the gun is "aimed" and the



stream regulated by one hand while the other turns the gun on and off.

To prevent fatigue of the operator while using the gun, a device is used to hold the trigger in place, giving a steady stream without constant grasping of the grip. There are special construction features inside the gun, as well as an improved nozzle arrangement. A few test guns were used by growers this past season and they have reported good performance.

I've just looked over a copy of the revised Disston Saw, Tool and File Manual. This handy little book (it measures

five by seven and one-half inches and has 50 pages) is filled with helpful information on care and use of the tools used by fruit growers during the entire year. It pictures and describes, for instance, tools for saw refitting.

## DOG TAG •

In Evanston, Ill., M. J. Swan has worked out a system which will insure the return of lost dogs to their owners. On a circular piece of metal is stamped



the name of the dog and the name, address and telephone number of the dog's owner. Mr. Swan made an identification tag for Parnell, an Irish setter belonging to

E. G. K. Meister, publisher of AMERICAN FRUIT GROWER, which is illustrated here. The tags are fitted with a strong hook for attaching to dog collar or harness where they can be readily seen.

## HAND SHEAR •

Stating that they have spent a good deal of time trying to find out what type of hand shear works best for fruit tree pruning, members of the Bartlett Mfg. Co. staff have announced their new, heavy-duty hand shear as a result of their study of the fruit pruning situation. Sturdily



constructed of strong, but not too heavy metal, the shear is said to have a carefully balanced mechanism which allows cutting of relatively large branches with a minimum of pressure. Dangers of "palm pinching" are eliminated by mounting of the catch that holds the shear shut at the top of the tool rather than between the handles.

AMERICAN FRUIT GROWER

## MAKE A Test OF ALORCO CRYOLITE

Try ALORCO Cryolite, on fruit or ground crops, for control of codling moths, flea weavils, curculios, and other chewing insects, and you will discover this: You can use it in a way that gives a new approach to the tolerance problem. It covers better and sticks better, because particles are finer (15 times as many for a given weight), and fineness also makes it easier to remove. For a trial, you will need information on effectiveness and method of use; ask your dealer for literature, or write to ALUMINUM ORE COMPANY. (Sales Agent: ALUMINUM COMPANY OF AMERICA, Pittsburgh, Penna.)

## ALORCO CRYOLITE

## SELL SOAP Complete Outfit FREE!

Own a steady route; full or spare time. Make money at once and all year 'round with Soaps and many other daily home necessities—over 200 nationally known guaranteed products. Complete outfit, including large assortment of full size packages—FREE to reliable persons. Old-established company. Write quick for my Free Offer. E. J. MILLS, 9873 Monmouth Ave., Cincinnati, Ohio.



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We make FALSE TEETH that fit by MAIL from your mouth-impression! Money-Back Guarantee of Satisfaction. Thousands of satisfied customers. Write for FREE mouth-forms, directions, etc. ORAL LAB., Dept. F-5, GARY, IND.

**STRAWBERRY PLANTS**  
\$2.75 PER THOUSAND  
Get our specials on plants, trees, shrubs and save money. Over 100 real bargains in our catalog. Big cash discount for early orders or will ship express C. O. D. if you prefer. Examine stock before you pay. Write now.  
The Ackerman Nurseries, Box 24, Bridgman, Mich.

PAGE 21

# SUCCESSFUL ORCHARDS

● A "ROUND TABLE" PAGE FOR EVERY GROWER ●

## ROUND FILE HELPS WHEN SEPARATING BASKETS

**A**NYPONE who has tried to pull empty stacked baskets apart when they are "frozen" tight knows that the following word from New Jersey grower, Howard Fravel, is sound advice.

"The next time you have trouble separating nested baskets, try it our way. We insert a round file, about a 10-inch one, between the bottoms and pry the baskets apart. Any strong spike can be used, provided it's strong enough to keep from bending when the necessary pressure is applied. We're passing this idea along because it has worked for us. The flat-bottomed baskets are usually the hardest to separate."

## BLOSSOMING OCCURS TWICE DURING SEASON

"**T**HIS spring, late frosts hit the blossoms of a Rome Beauty tree on our place," says E. E. Swan of Arizona, "and the tree shed its leaves. We didn't know whether to give the tree up for lost or not. But during the summer when we were applying manured peat moss to other trees we decided to put some around the tree that had no leaves or fruit. To our surprise, leaves came out about six weeks after putting on the peat moss and blossoms appeared on the tree by the latter part of September."

## EASY TO FIND TOOLS IN FRUIT FARM WORKSHOP

**I**T'S not very often that the "Round Table" editor has a chance to see a new use of old ideas around fruit farms. But not long ago a visit was made to the Clyde S. Mumma Orchard near Dayton, Ohio. Mr. Mumma and his son, Bernard, have fitted out the orchard workshop in a way that would make any grower proud to

Here, each month, growers get together to discuss experiences and ideas. The beginner as well as the veteran discovers many practical suggestions for better and more profitable fruit growing. You, too, have some experiences that will be helpful to fellow growers. Send them—briefly written on a penny card is satisfactory—to "ROUND TABLE EDITOR," AMERICAN FRUIT GROWER, 1370 Ontario St., Cleveland, Ohio. One dollar will be paid for each item published on this page.

have a similar place on his farm. About the workshop, Bernard explained:

"Some time ago we decided that there would have to be a good arrangement of tools in the farm shop if we were to get work done in a reasonable amount of time even when we had ample time to work on the job. We needed things handy so rush

# \$1.00

## EACH FOR YOUR NEW IDEAS

jobs could be taken care of during busy seasons.

"Cabinets for the tools and drawer cases for screws, bolts, etc., were fastened to the wall above the bench along one side of the shop which is about 60 feet long. Cases and cabinets are labeled to indicate what's inside. Lathes and other power machines are on the other side of the shop with work space between."

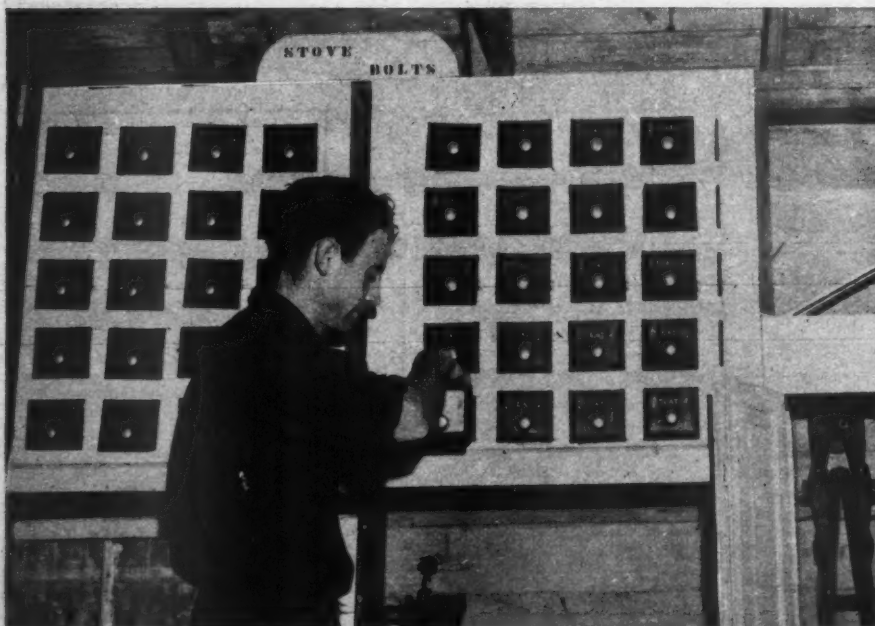
## USES CLIPS ON PAPER POISON BAIT STATIONS

**A** TIMELY subject is covered by a letter from Robert L. Morehouse who operates the North Carolina Mountain Crest Orchards.

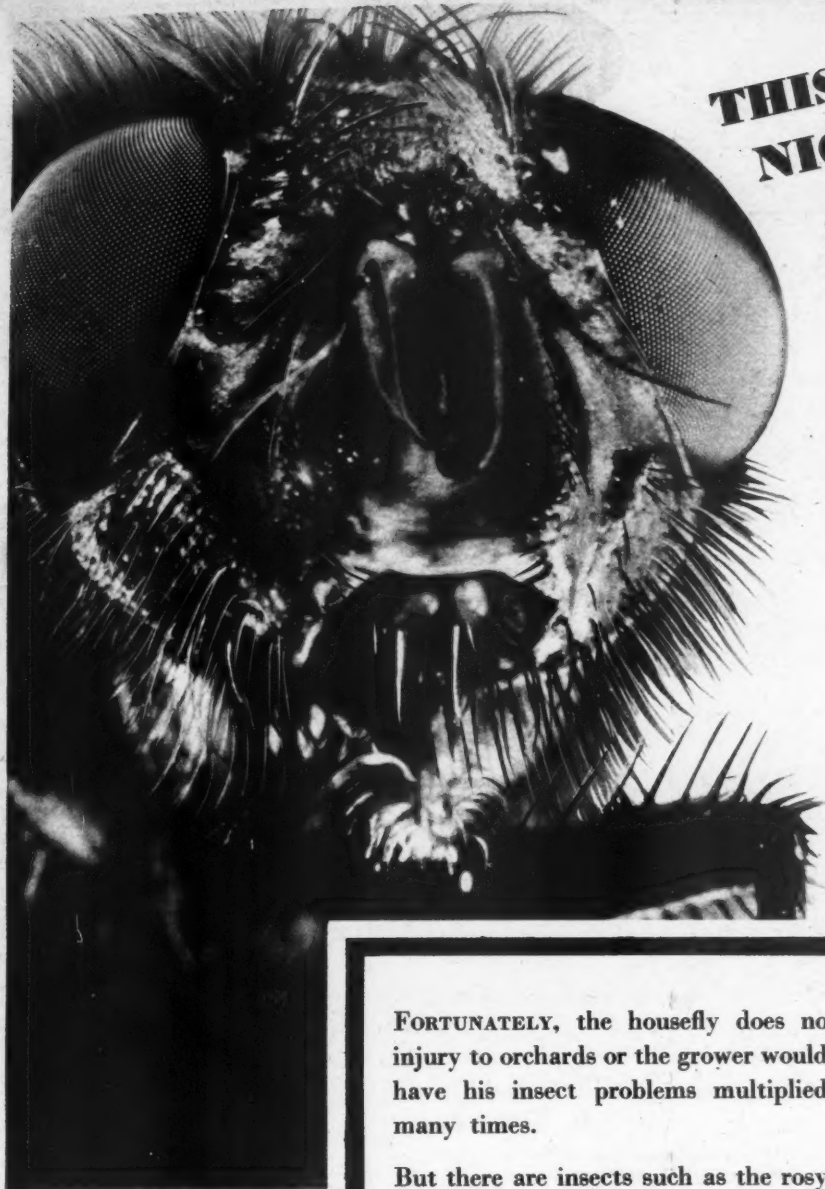
"We use poison bait for mice that is sold by the U.S.D.A. in Washington, D.C. With each shipment of the bait there is a leaflet suggesting that paper tubes made from heavy asphalt roofing paper be used when placing bait in the orchard. They recommend that if several tubes are needed, the 36-inch-wide rolls of the paper be cut into four nine-inch lengths and 13-inch pieces be cut from the smaller rolls. The pieces are formed into tubes and either paper clips or rubber bands can be used to hold them together.

"We have used this type of station for the past two years and after trying rubber bands we now use paper clips. The rubber bands weather away in a short time and the tubes do not hold their shape. We also find it easier to cut the 36-inch roll on a circular wood saw than with a hand saw."

As explained by Bernard Mumma on this page, keeping tools and materials in easy-to-find places saves time in the busy orchard workshop. Below, left, Mumma has climbed on bench to get the size stove bolt needed and below he's using it in rack to be placed on truck.







## THIS IS NO NIGHTMARE . . .

This is no nightmare but the face of a common housefly which, during the course of one summer, may have as many as 5,000,000,000,000 descendants. Picture from *Grassroot Jungles* by Edwin Way Teale.

FORTUNATELY, the housefly does no injury to orchards or the grower would have his insect problems multiplied many times.

But there are insects such as the rosy apple aphid and early green aphid that *do* make a nightmare of the grower's dream of a good crop and consequent profit. For these insect pests Dow has developed an effective insecticide — DOWSPRAY\* DORMANT.

DOWSPRAY DORMANT protects fruit against a greater variety of insects and

is 3 times as toxic as most dormant sprays. DOWSPRAY DORMANT contains 100% active ingredients, mixes easily, is non-freezing, stable, and flowable under all conditions. It is economical and easy to use and harmless to both workers and equipment.

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\*Trade Mark Reg. U. S. Pat. Off.

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"\$500.00 from one acre"—even \$200.00 from a town lot after family had taken all they wanted! Plant STARK Early-Bearing Profit-producers—Berries and Grapes often bear 1 year after planting—peaches in 2 years—GOLDEN DELICIOUS Apples—Bore in 33 states when only 2 years old! Share in these Quick Profits—mail Coupon Today for the Free Stark Books—full of Help and Guidance! for it TODAY!

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